Titus Winters

Senior Software Engineer Google

Introduction

Titus is a Senior Software Engineer in Google whose main task is in software maintainability and API design. Google of course uses a large amount of languages but one of their core languages is C++ of which Titus is no stranger to. He focuses on long term software solutions to one of the biggest software companies globally.

The committee

One of the biggest contributions Winters has made to the software community at large is his role in the C++ Standards Committee and the chair for Library Evolution Working Group (design for the C++ standard library).

This committee and group are in charge of the direction of the language as a whole which requires a great deal of expertise.

Talker and teacher

Perhaps the greatest contribution Titus has given is his talks and his teaching. He has taught at UC Riverside in short seminars focused at short bursts of relevant Computer Science knowledge. As well as this, Titus has been a key speaker at several CppCon conventions, giving talks on different aspects of software engineering, revolving around good and bad practices, scalability and maintainability. Each talk is a wealth of information coming from one of the more experienced software engineers of the modern time.

Not all talk, everyone has to work

Titus' work at Google as software engineer is one of the toughest place to have such a job. One of his jobs is as Team Lead for the team that maintains Google C++ Core infrastructure code like the File abstractions, base networking infrastructure, and general data manipulation and data structure routines. This is code that millions of lines of code depend on, every day, every hour, every second...continuously. Maintaining and changing anything is a monumental challenge to not disrupt any dependants.

Titus has been organizing, maintaining, and evolving the foundational components of Google's C++ codebase using modern automation and tooling. Titus also designed much of Google's internal C++ training curriculum, and reinvented Google's C++ mentorship program. Before his time at Google, his main focus was on API's in embedded systems at JetHead and The AeroSpace Corporation.

Time to learn

Titus has both a MS in Computer Science as well as a PhD, both from University of California, Riverdale. His MS thesis, titled "*Analysis, Design, Development, and Deployment of a Generalized Framework for Computer-Aided Assessment*"
and his PhD, "*Educational Data Mining: Collection and Analysis of Score Matrices for Outcomes-Based Assessment*" both focus primarily on education grading.

C++ and beyond

As mentioned previously, one of Titus' roles is as a chair member on the C++ Standards Committee. This coupled with his work at Google means that his view and role in the C++ world has an impact on millions of developers worldwide. He is one of the four contributors to the CppCoreGuidelines, a large list of guidelines any C++ developer should follow for a tried and tested set of guidelines to follow. His focus on the committee is the evolution of the C++ STL (standard library) which speaks highly of his experience of long term maintainable code.

Following this, in an attempt to solve some of these issues surrounding maintainability, scalability and longevity in an ever changing environment, he is the found of Abseil. This is a library to augment the C++ standard library with a focus on "Living at Head", a phrase coined by Titus to encourage developers and teams to use the latest versions of libraries and not to become stuck in a dependency hell. He also follows a core idea with Abseil to allow it to be compatible with future standards of C++ as the language grows and evolves.https://www.youtube.com/results?search_query=titus+winters+cppcon

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